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BIOLOGICAL EVALUATION OF PROPOSED DWARF MISTLETOE PROJECTS ON THE PAYETTE NATIONAL FOREST, IDAHO

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INTRODUCTION

The timber inventory on the Payette National Forest (Figure 1) was updated in 1978 and 1979 using aerial photographs and ground checks. From this extensive inventory, strata which emphasized conditions for management opportunities were delineated. Forested areas were stratified by stand condition (percent of mature, overmature, immature trees) and stand density (crown cover/stocking) (Appendix 1).

From the inventory, about 50,000 acres of partial-cut areas with less than 50-percent crown cover were identified and designated as strata 21. These areas had been harvested primarily by the overstory removal method. The residual overstory in many of the "21" areas was suspected of being infected by dwarf mistletoes which pose a threat to future stand productivity and regeneration efforts. Consequently, Forest Pest Management (FPM) provided supplemental funding of the Forest's stand examination effort in 1980 and 1981 to gather pest information, especially dwarf mistletoe data in the "21" areas.

This report is a biological evaluation based on 16,000 acres of stand examination data. It is intended to provide the basis for future dwarf mistletoe suppression projects on the Forest.

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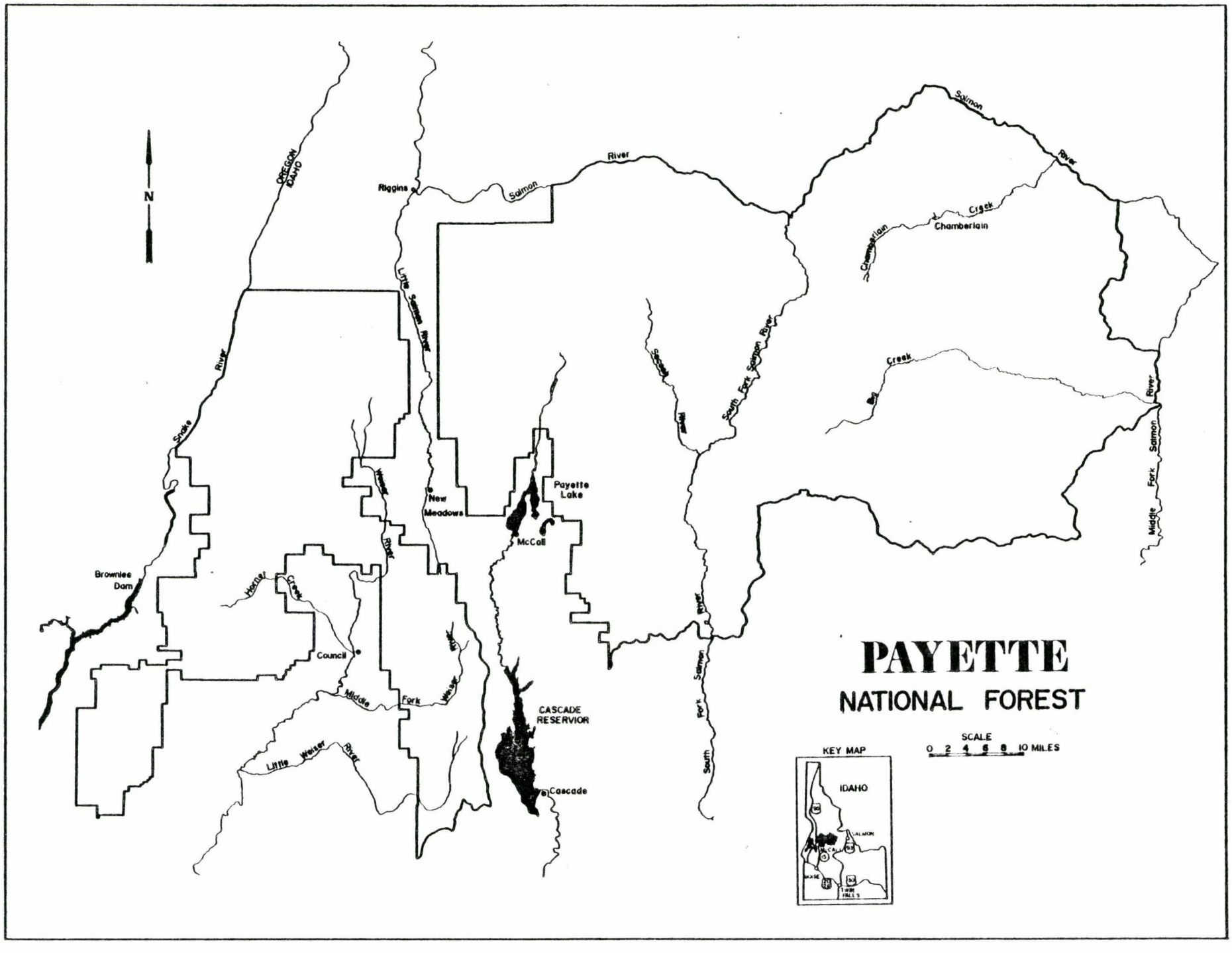
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OREGON
IDAHO
Riggins
Salmon River
Little Salmon River
Snake River
Brownlee Dam
Weiser River
New Meadows
Payette Lake
McCall
Hornet Creek
Council
Middle Fork Weiser River
Little Weiser River
CASCADE RESERVOIR
Cascade
Secesh
South Fork Salmon River
Chamberlain Creek
Big Creek
Middle Fork Salmon River
South Fork Salmon River
PAYETTE
NATIONAL FOREST
KEY MAP
IDAHO
SCALE
0 2 4 6 8 10 MILES

Figure 1.

TECHNICAL INFORMATION

Hosts - Douglas-fir, Pseudotsuga menziesii (Mirb.) Franco; lodgepole pine, Pinus contorta var. latifolia Engelm.; ponderosa pine, Pinus ponderosa Laws.; and western larch, Larix occidentalis Nutt.

Causal Agents - Douglas-fir, lodgepole pine, ponderosa pine, and western larch dwarf mistletoes; Arceuthobium douglasii Engelm., A. americanum Nutt. ex Engelm., A. campylopodum Engelm., and A. laricis (Piper) St. John, respectively.

Type of Damage - Reduction of height and diameter growth, seed viability, host vigor, and wood quality. Also, direct mortality can occur after years of continued infection and reinfection of individual trees (Hawksworth 1978).

SURVEY METHOD

The stand examination (Region 4, type 1 and type 2, intensive forest inventory examination and stocking examination of deforested areas, respectively) was planned and conducted by Forest personnel. For areas over 15 acres in size, a 4- by 5-chain grid (1 plot per 2 acres) survey system was employed in the field. In areas of less than 15 acres, a 3- by 3-chain grid (1 plot per .9 acre) scheme was employed.

Along with the stand examination data, the field crews also rated each overstory tree for dwarf mistletoe incidence and intensity using the Hawksworth six-class system (Hawksworth 1977). The information was placed under column 40 - "Damage/Cause of Death." Unfortunately, the established stand examination procedure requires that when a tree is damaged by more than one agent, the most severe form of damage is recorded first (R-4 Stand Examination). To avoid the loss of mistletoe data if superseded by other pests, the crews were instructed to include the dwarf mistletoe data only in either of the blank columns 56 and 57.

DATA EVALUATION

Personnel from the Payette National Forest and an FPM pathologist examined completed stand examination forms to identify areas for prospective dwarf mistletoe control projects and to prioritize individual stand treatments. A stratification scheme was developed to categorize "21" stands by treatment priority based on:

1. Dwarf mistletoe ratings
2. Ratio of host overstory trees to entire overstory
3. Ratio of host understory trees to entire understory

The methodology to derive these criteria follows:

1. Individual dwarf mistletoe intensity ratings were averaged by host species and categorized as follows:

Heavy dwarf mistletoe rating (H) - Hawksworth classes 3.0 to 6.0
Medium dwarf mistletoe rating (M) - Hawksworth classes 1.5 to 2.99
Light dwarf mistletoe rating (L) - Hawksworth classes .01 to 1.49
No dwarf mistletoe rating (0).

Rarely was more than one dwarf mistletoe species found infecting a "21" area even though most stands were of mixed-conifer composition. Where two host species were mistletoe-infected, the combined data established the dwarf mistletoe rating and subsequent treatment priority.

2. Low overstory stocking levels are definitive of the "21" areas. This can be either beneficial or detrimental to dwarf mistletoe spread. Generally, dwarf mistletoes spread rapidly in open stands because interference to the parasite's dispersal of seed is reduced (Hawksworth 1961). Conversely, the chance of dwarf mistletoe spread from existing infection centers is reduced when tree spacings are greater than the average spread-distance of dwarf mistletoe seed. The greatest rate of spread occurs when the average distance between trees is 15 to 30 feet (Hawksworth 1961).

The mixed-conifer composition of most of the "21" stands complicates the issue of variable density and dwarf mistletoe impacts. Logically, it would appear that spread of the host-specific dwarf mistletoes would be diminished because of reduced chances of successfully targeting another host tree. There is widespread agreement with this assumption (Parmeter 1978), but unfortunately, the subject has not been thoroughly researched or quantified. To date, only Schwandt (1977, 1981) has speculated on specific percentages of stand infection levels or specific proportions of stand species composition that could be used in the dwarf mistletoe control, decision-making process.

From a review of the stand examination data, it was decided a ratio of one or more overstory host trees to every four overstory trees in a "21" area constituted a high hazard. This 25-percent figure was and is arbitrary.

3. In most of the "21" areas, overstory trees have little present or potential commercial timber value. Therefore, dwarf mistletoe control is intended to benefit the regenerated stand. Consequently, the occurrence and species composition of an understory played an important part in deciding on a stand dwarf mistletoe hazard rating and on the scheduling of control treatments. Again subjectively, with a realization that because of their small size they may be overlooked, a ratio of one or more dwarf mistletoe-susceptible host seedlings/saplings to five understory trees was considered high hazard.

Like all schemes that categorize nature, "grey areas" emerge between priority classes. Nevertheless, the intent of this evaluation is to simplify the identification and scheduling of mistletoe control projects. With this purposeful attitude, the following action priorities were established:

Priority 1 - Treatment needed within 5 years

a. Dwarf mistletoe rating heavy
b. Greater than 25 percent of dwarf mistletoe-susceptible host species in overstory

c. Greater than 20 percent of dwarf mistletoe-susceptible host species in seedling class

Priority 2 - Treatment needed in 5 to 15 years

a. Dwarf mistletoe rating medium
b. Same as Priority 1 b. or less
c. Same as Priority 1 c. or less

Priority 3 - Treatment needed after 15 years

a. Dwarf mistletoe rating light
b. Less than 25 percent of dwarf mistletoe-susceptible host species in overstory
c. Less than 20 percent of dwarf mistletoe-susceptible host species in seedling class

Priority 4 - Treatment at any time

Dwarf mistletoe control not a constraint to management.

RESULTS AND DISCUSSION

A total of 16,013 acres of "21" strata on the Payette National Forest were evaluated for dwarf mistletoe control considerations. This information is presented in Tables 1 to 8. Tables 1 to 4 are a stratification of 11,537 acres on the Council Ranger District (D-1) into four dwarf mistletoe treatment priority classes. Tables 5 to 8 include treatment priorities for 4,476 acres of similar "21" strata stands on the New Meadows Ranger District (D-3).

Other data included in the tables could be useful to future land managers for implementing treatments. For instance, knowledge of stocking levels in the understory (number seedlings per acre) permits sufficient lead time for ordering nursery seedlings. The overstory stocking levels and volume information can help to identify salvage or firewood sale areas. Suggested treatment methods are included in Appendix 3.

Most importantly, this report provides the basis for FPM supplemental funding requests for dwarf mistletoe suppression projects. The best assurance of continued FPM financial support for any control program is to establish funding requests and targets directly into the Forest's RPA system. In this way, a sustained dwarf mistletoe control program could be scheduled directly into the Payette's budget and accomplishment processes.

Specific project proposals must conform to the Region 4 Dwarf Mistletoe Handbook (draft). Briefly, the valid use of FPM funds for dwarf mistletoe control requires areas where K-V and P&M funds are unavailable or lacking (FSM 3481.5). Certainly, many of the "21" strata fit this requirement. Where there is sufficient volume to warrant timber sale entries, mistletoe funding is available to cover those control measures that exceed normal silvicultural practices such as marking and/or administering salvage sales. Control funds may not be used for reforestation practices or planting (FSM 3481.55).

TABLE 1. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
COUNCIL RANGER DISTRICT - D-1

Acres of Action Priority 1. Treatment Needed within 5 Years

Compartment Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/ Acre
4-201	82	H	PP	18/28	222/332	2309
4-202	57	H	PP	18/28	222/332	1424
11-801	82	H	DF	10/35	138/646	2765
14-801	45	H	DF	10/11	30/95	804
29-801	59	H	LP	6/15	146/286	1589
31-802	29	H	DF	25/79	227/367	6119
31-804	56	H	DF	10/29	115/352	5642
31-805	63	H	DF	8/20	45/155	4610
40-801	30	M	PP	14/36	540/760	849
46-803	89	H	DF	6/25	149/340	3422
46-806	40	H	DF	15/31	35/105	10154
46-807	20	H	DF	16/40	63/380	1301
48-801	88	H	DF	9/22	65/326	1918
53-801	65	H	PP	17/56	87/383	1115
53-802	38	H	PP	7/18	193/257	1292
125-801	50	H	DF	7/25	108/400	4059
140-802	80	H	DF	11/16	34/132	1255
*140-803	101	H	PP-DF	7/16-7/16	73/104-15/104	1394
*142-801	104	H	PP-DF	15/38-20/38	151/230-45/230	2796
*142-802	32	H	"	"	"	3913
*144-801	64	H	PP-DF	5/50-24/50	119/225-50/225	3610
*144-804	12	H	"	"	"	3049
145-801	75	H	DF	4/31	333/780	4500
146-801	78	H	DF	6/31	64/238	3930
146-802	77	H	DF	6/31	64/238	2520
156-801	68	H	DF	6/17	77/397	5229
156-802	48	H	DF	6/17	77/397	3134
372-201	72	H	PP	15/29	617/767	1347
372-802	75	H	PP	18/31	381/465	3983
382-808	58	H	PP	12/21	390/483	3266

COUNCIL RANGER DISTRICT - D-1
Acres of Action Priority 1 - (cont.)

Compartment Stand	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/ Acre
396-801	42	H	PP	4/32	157/324	2029
406-805	92	H	PP	28/37	144/169	1496
407-801	70	H	PP	74/77	214/229	1518
407-803	39	H	PP	45/45	268/269	2124
408-801	113	H	PP	21/30	92/121	842
408-803	54	H	PP	36/42	241/262	1647
446-801	37	H	DF	9/22	63/411	1994
447-801	26	H	DF	38/53	450/467	1502
464-801	85	H	DF	6/16	98/298	1725
467-804	16	H	DF	28/29	350/1100	3110
479-802	99	H	PP	9/12	44/54	1002
479-803	88	H	PP	9/9	55/69	619
479-805	37	H	PP	4/19	124/186	1073
486-803	54	H	DF	21/37	176/316	1912
486-804	43	H	DF	21/37	176/316	1135
486-806	60	H	DF	22/33	162/397	3754
486-807	50	H	DF	10/14	68/141	499
519-801	22	M	PP	5/7	700/1000	3988

TOTAL 2,864 acres

* More than one dwarf mistletoe species present in stand

TABLE 2. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
COUNCIL RANGER DISTRICT - D-1

Acres of Action Priority 2. Treatment Needed in 5 to 15 Years

Compartment-Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
1-801	30	M	PP	12/48	153/360	1680
1-802	50	M	PP	12/48	153/360	1829
3-803	73	M	PP	13/44	111/287	2285
4-802	51	L	PP	18/52	350/542	2032
5-801	22	L	PP	31/40	212/238	1353
9-803	52	M	DF	17/65	69/717	3115
9-804	52	M	DF	17/65	69/717	1289
9-805	10	M	DF	17/65	69/717	1709
12-801	54	M	DF	4/22	139/668	1527
12-802	48	M	DF	9/37	304/1236	2826
12-803	40	M	DF	9/37	304/1236	1370
12-804	50	M	DF	4/22	139/668	2235
16-801	22	L	DF	4/14	200/408	909
16-804	80	M	DF	10/33	30/148	2014
28-803	38	M	DF	2/7	36/179	1293
30-802	48	M	DF	5/28	16/63	4994
40-801	30	M	PP	14/36	540/760	849
50-802	73	M	DF	6/6	11/41	214
100-801	44	M	DF	2/10	133/450	1254
109-801	118	M	DF	11/32	64/220	2194
112-801	19	L	PP	6/13	100/136	1194
130-802	51	M	DF	8/23	8/140	5279
130-804	94	M	DF	3/34	21/174	3220
130-805	57	M	DF	4/18	79/337	3204
139-802	50	L	PP	2/19	258/550	2722
140-804	61	M	DF	1/8	18/150	1698
141-801	76	M	DF	10/36	36/275	1396
149-801	78	M	DF	7/34	36/150	6158
151-801	28	M	DF	2/15	136/464	2697
382-801	85	M	PP	5/25	85/323	1247

COUNCIL RANGER DISTRICT - D-1
Acres of Action Priority 2 - (cont.)

Compartment Stand	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/ Acre
382-802	67	M	DF	17/29	14/60	1015
382-803	84	M	PP	9/15	167/274	2381
388-801	106	M	DF	7/24	28/168	1890
396-803	52	M	DF	19/45	89/311	3015
405-801	56	M	PP	14/30	217/265	914
405-802	24	M	PP	21/48	83/133	1796
405-803	48	L	PP	12/28	71/158	1867
406-802	56	M	PP	23/32	104/114	1896
406-803	84	M	PP	14/49	43/67	1760
406-804	90	M	PP	23/37	44/67	1681
408-804	113	M	PP	59/61	90/131	2269
415-801	98	M	DF	14/31	17/93	1389
437-802	71	M	DF	12/32	19/287	4945
448-801	32	M	DF	4/6	21/321	1504
479-801	77	M	PP	8/9	130/142	2116
479-804	117	M	PP	18/20	48/52	1713
486-808	52	M	DF	11/12	106/294	1331
524-801	80	L	PP	5/12	95/170	826
537-801	37	M	DF	9/33	48/243	3307
539-801	25	L	PP	5/13	358/489	8760
556-202	59	M	DF	21/23	85/276	986
556-805	61	M	PP	9/24	206/326	1182

TOTAL 3,073 acres

TABLE 3. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
COUNCIL RANGER DISTRICT - D-1

Acres of Action Priority 3. Treatment Needed after 15 Years

Compartment-Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
9-201	105	L	DF	6/32	77/987	1812
9-202	24	L	DF	6/32	77/987	1301
9-801	62	L	DF	5/28	97/632	1254
9-802	29	L	DF	5/28	97/632	2952
13-802	56	M	WL	1/44	8/1552	2326
13-804	32	M	WL	1/44	8/1552	3763
16-803	17	L	DF	5/66	75/962	1870
16-805	86	M	DF	2/13	14/214	2390
16-806	36	L	DF	10/58	172/433	1893
25-802	96	M	DF	5/18	30/324	3031
27-802	45	L	DF	3/5	18/29	N/A
27-803	13	L	DF	0/5	25/112	869
30-801	106	H	DF	8/14	47/98	1917
31-801	48	H	DF	9/17	36/108	4172
31-803	38	H	DF	5/8	5/27	2155
32-803	83	L	DF	4/11	33/211	854
40-802	37	O	DF	32/62	156/313	1103
44-801	22	L	PP	0/6	122/1067	362
46-804	24	O	DF	2/16	325/567	592
52-801	85	L	DF	2/28	16/292	1541
52-802	58	L	DF	1/14	54/71	884
58-801	64	L	LP	6/25	527/1420	940
60-803	66	L	DF	1/16	93/264	4692
63-801	64	L	DF	3/33	94/434	4234
63-802	31	L	DF	3/33	94/434	4393
70-802	129	L	DF	1/12	24/266	881
108-801	48	L	DF	7/72	10/95	13671
123-801	94	L	DF	1/24	17/372	3606
123-802	20	L	DF	11/24	17/372	10290
124-801	22	M	DF	0/2	13/362	609

COUNCIL RANGER DISTRICT - D-1
Acres of Action Priority 3 - (cont.)

Compartment-Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/ Acre
130-801	19	L	DF	10/46	129/371	1522
139-801	64	L	DF	1/10	14/105	1156
139-803	69	L	DF	5/20	10/107	2802
140-801	100	L	DF	2/21	62/347	2389
140-805	32	L	DF	2/21	62/347	1818
148-803	99	L	DF	1/12	39/205	534
168-802	61	L	DF	4/19	40/280	725
168-803	32	L	DF	0/15	50/1000	530
406-801	128	L	PP	22/36	40/77	1028
434-801	56	L	DF	28/36	59/107	2991
434-803	46	L	PP	17/49	130/580	4354
445-801	45	L	DF	0/8	19/156	436
447-802	21	L	DF	5/17	11/189	2098
448-803	57	L	DF	3/13	24/148	383
461-801	36	L	DF	20/26	22/39	3177
467-201	62	L	DF	10/21	29/58	1302
467-802	36	L	DF	38/61	56/289	2890
486-801	63	L	PP	7/13	57/96	1010
520-801	57	L	PP	6/20	47/100	1468
530-802	15	L	DF	6/30	40/240	3332
536-802	27	M	DF	1/3	0/9	1534
536-803	34	M	DF	12/58	0/58	4438
536-804	32	L	DF	2/10	27/80	1160
556-201	60	L	DF	15/22	9/79	1121
556-801	34	L	DF	5/7	68/150	339
556-806	128	L	DF	13/18	39/139	1164

TOTAL 3,053 acres

TABLE 4. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
COUNCIL RANGER DISTRICT - D-1

Acres of Action Priority 4. Treatment Not Predicated on Mistletoe Control

Compartment-Stand	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
2-801	52	0	DF	7/38	109/561	1439
2-802	61	0	DF	10/46	89/1048	2558
3-801	14	0	DF	17/21	100/260	620
8-801	32	0	PP	2/23	313/715	631
15-801	30	0	DF	0/23	14/250	1253
27-804	12	0	DF	0/2	117/250	468
42-802	27	0	DF	11/16	69/362	2966
43-801	62	0	DF	4/10	20/287	153
43-803	51	0	DF	0/19	112/412	963
52-803	51	0	DF	0/31	35/348	1356
52-804	35	0	DF	3/7	0/33	N/A
53-803	23	0	PP	0/32	89/189	1669
60-801	39	0	LP	44/53	147/294	2319
70-801	21	0	DF	0/18	50/1170	1426
75-801	71	0	DF	1/23	16/241	2275
77-801	88	0	PP	0/14	117/159	1687
77-802	44	0	PP	5/19	41/150	2341
77-804	92	0	PP	0/13	35/467	1767
109-802	38	0	PP	28/28	5/5	1309
124-802	20	0	DF	0/29	9/600	1382
130-803	54	0	DF	4/28	317/857	2614
131-801	18	0	DF	14/78	78/656	5709
138-801	65	0	DF	0/2	19/75	614
138-802	24	0	DF	0/0	9/164	-
139-804	30	0	DF	12/49	12/275	3382
139-805	35	0	PP	3/8	250/475	876
144-802	76	0	LP	1/23	376/659	1452
145-802	16	0	DF	3/54	29/300	2145
148-801	9	0	DF	1/4	31/144	224
148-802	47	0	LP	1/17	121/350	1631

COUNCIL RANGER DISTRICT - D-1
Acres of Action Priority 4- (cont.)

Compartment-Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
155-801	52	0	PP	2/5	81/85	655
155-802	58	0	DF	2/25	71/271	2594
168-801	36	0	PP	14/22	267/407	1467
173-201	58	0	PP	2/16	134/262	526
396-803	52	-	-	-	-	4352
434-802	27	0	PP	13/23	67/75	3091
442-801	46	0	PP	20/20	155/155	1902
442-802	89	-	-	-	-	1756
442-803	20	-	-	-	-	4604
442-804	43	-	-	-	-	3410
442-805	43	-	-	-	-	2584
448-804	40	L	DF	0/2	22/435	6
461-802	19	0	PP	16/26	82/82	2452
467-803	34	0	PP	20/20	18/18	1155
468-801	63	0	PP	38/39	46/119	3006
[illegible]-802	83	0	PP	19/19	75/75	1474
470-801	29	0	DF	22/56	100/115	2295
470-802	77	0	DF	33/47	67/100	1576
486-802	44	0	PP	7/17	128/200	622
486-805	85	-	-	-	-	1765
487-801	38	0	PP	13/13	133/140	128
520-802	16	0	DF	10/12	0/0	714
531-801	40	0	DF	0/1	12/17	239
531-802	46	0	PP	0/21	200/282	685
532-801	29	0	PP	1/25	80/187	3029
536-801	30	L	DF	1/5	0/8	2119
536-805	29	0	DF	0/4	0/41	418
546-802	33	L	DF	1/28	36/271	5419
546-803	39	M	WL	2/21	0/169	2989
563-801	12	0	PP	50/54	0/17	3371

TOTAL 2,547 acres

TABLE 5. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
NEW MEADOWS RANGER DISTRICT - D-3

Acres of Action Priority 1. Treatment Needed within 5 Years

Compartment-Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
77-802	36	M	WL	1/3	977/2268	1157
134-805	82	H	DF	14/48	120/243	4028
134-807	24	H	DF	17/34	17/50	5211
139-802	30	M	LP	3/41	160/920	1744
139-811	28	H	LP	23/43	88/252	1474
*144-802	24	H	DF-PP	10/22-7/22	62/646-106/646	4458
153-801	69	H	DF	16/24	80/309	2890
*156-801	94	H	PP-DF	18/29-11/29	162/256-93/256	1187
158-801	48	H	PP	24/35	240/245	1731
161-803	65	H	PP	7/12	15/29	681

TOTAL 500 acres

* More than one dwarf mistletoe species present in stand

TABLE 6. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
NEW MEADOWS RANGER DISTRICT - D-3

Acres of Action Priority 2. Treatment Needed in 5 to 15 Years.

Compartment-Stand #	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
77-801	57	M	DF	1/3	181/1494	782
*98-201	55	M	DF-WL	5/40-3/40	63/474-35/474	1654
98-807	87	M	DF	4/35	40/254	1574
98-808	88	M	DF	4/35	40/254	2023
105-806	84	M	DF	20/58	104/300	5197
105-807	70	M	DF	20/58	104/300	4457
133-803	70	M	DF	12/26	231/541	2479
134-801	40	H	DF	13/45	30/850	3893
134-806	28	M	DF	17/34	43/200	3859
135-801	92	M	DF	5/15	27/151	2771
138-801	20	L	PP	15/23	80/170	2904
139-807	34	L	DF	12/38	147/376	1280
145-801	28	M	DF	14/29	86/664	778
145-802	19	M	DF	3/7	150/880	1377
*146-801	52	M	DF-WL	1/24-2/24	220/1050-146/1050	2702
*146-802	28	M	DF-WL	5/47-2/47	293/586-86/586	5163
*146-805	81	M	DF-WL	6/58-3/53	44/630-48/630	4937
149-803	80	M	DF	16/27	35/152	1186
151-801	91	M	DF	12/35	84/229	2317
*157-801	58	H	PP-DF	21/34-12/34	42/111-37/111	3052
159-801	90	M	DF	17/41	42/100	1883
160-801	90	M	DF	10/18	72/206	1129
161-801	37	M	PP	5/32	120/267	1977
161-802	68	H	PP	8/17	30/39	553
*161-804	62	M	DF-PP	18/26-8/26	104/178-74/178	2102
180-801	61	M	PP	29/48	180/297	3082

TOTAL 1,570 acres

* More than one dwarf mistletoe species present in stand

TABLE 7. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
NEW MEADOWS RANGER DISTRICT - D-3

Acres of Action Priority 3. Treatment Needed after 15 Years

Compartment-Stand	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
78-801	56	L	WL	5/30	21/628	1342
78-802	62	L	WL	5/30	21/628	1325
84-801	63	L	DF	3/25	71/391	3328
94-201	60	L	DF	5/16	22/170	1708
98-801	74	L	DF	17/53	82/482	3055
98-803	16	L	DF	17/53	82/482	1874
98-805	59	L	DF	9/29	134/439	1314
98-806	79	L	DF	9/29	134/439	2152
98-810	64	L	DF	17/53	82/482	2863
98-811	8	L	DF	17/53	82/482	13537
103-801	25	L	DF	11/16	33/508	1981
106-801	88	L	DF	14/41	49/151	4354
106-802	82	L	DF	20/41	51/127	4080
106-803	55	L	DF	20/41	51/127	4790
106-804	10	L	DF	20/41	51/127	6821
128-801	42	L	DF	7/26	17/183	1667
133-802	90	L	DF	9/34	63/316	1908
133-811	35	L	DF	12/42	23/39	2771
134-803	10	L	DF	6/6	60/620	44
139-801	64	L	LP	20/53	8/228	2993
139-803	62	L	DF	8/19	23/161	1162
140-802	23	L	DF	2/36	45/182	1011
144-803	66	L	DF	8/30	48/274	1044
144-804	42	L	DF	8/30	48/274	1124
146-806	86	M	DF	5/33	37/720	2813
149-801	49	L	DF	14/23	24/178	3068
149-802	64	L	DF	15/57	84/194	2321
149-807	34	L	DF	7/15	59/276	5508
150-802	58	L	DF	10/37	38/381	1742
150-803	54	L	DF	7/12	72/435	819
154-801	33	L	PP	12/37	8/54	2001
155-801	65	L	DF	11/27	68/188	3985
155-803	33	L	DF	22/36	18/45	5147
169-801	30	L	PP	27/30	82/100	8267
170-801	60	L	PP	10/19	218/239	1741

NEW MEADOWS RANGER DISTRICT - D-3
Acres of Action Priority 3 - (cont.)

Compartment Stand	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/ Acre
349-811	56	L	DF	7/49	111/454	3740
349-812	14	L	DF	7/49	111/454	3930

TOTAL 1,871 acres

TABLE 8. DWARF MISTLETOE EVALUATION OF "21" STRATA

PAYETTE NATIONAL FOREST
NEW MEADOWS RANGER DISTRICT - D-3

Acres of Action Priority 4. Treatment Not Predicated on Mistletoe Control

Compartment-Stand	Acres	DMR	Host Species	# Overstory Trees/Acre Host/Total	# Seedlings/Acre Host/Total	Volume/Acre
94-801	36	0	DF	3/3	77/232	276
98-804	29	0	DF	12/28	123/350	1170
134-802	6	-	-	-	-	0
134-804	10	-	-	-	-	704
139-804	86	0	PP	25/51	23/269	3119
139-805	78	-	-	-	-	1319
139-806	88	0	LP	6/33	53/344	1623
146-803	21	0	PP	32/50	278/434	4761
149-804	28	0	DF	11/40	14/179	863
153-802	30	0	PP	0/4	340/465	218
180-802	48	0	PP	26/41	83/112	1446
348-801	75	0	DF	7/32	93/193	985

TOTAL 535 acres

LITERATURE CITED

Graham, D. P. 1967. A training aid on dwarf mistletoe and its control. 49 pp.

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Parmeter, J. R. 1978. Forest stand dynamics and ecological factors in relation to dwarf mistletoe spread, impact, and control. Pages 16-30 in: Proceedings of the Symposium on Dwarf Mistletoe Control Through Forest Management. April 11-13, 1978, Berkeley, CA. USDA For. Serv., Gen. Tech. Rep. PSW-31. 190 pp.

Schwandt, J. W. 1977. Dwarf mistletoe control guidelines for Idaho forests. Report 77-2. 13 pp.

Schwandt, J. W. 1981. Management recommendations based on dwarf mistletoe surveys in southwest Idaho. Report 81-1. 16 pp.

Appendix 1

PAYETTE INVENTORY STRATA

Unit #	Stand Condition	Percent Crown Cover/Stocking
20	Clearcut (seedlings not visible on photo)	
21	Partial cut	10-50/light - moderate
22	Partial cut	50-100/moderate - heavy
23	Mature - overmature	70-100/heavy
24	Mature - overmature	35-70/moderate
25	Mature - overmature	10-35/light
26	Mature - immature) 50% or more of	70-100/heavy
27	Mature - immature) area is mature	35-70/moderate
28	Mature - immature) or overmature.	10-35/light
29	Burns (No trees visible on photos)	
30	Immature (poles - saplings)	10-35/light
31	Immature (poles - saplings)	35-70/moderate
32	Immature (poles - saplings)	70-100/heavy
33	Immature - mature) 50% or more of	10-35/light
34	Immature - mature) area is immature.	35-70/moderate
35	Immature - mature)	70-100/heavy
40	Non-commercial	
60	Non-forest	0-10
98	Water (less than 40 acres)	
99	Water (over 40 acres)	

STAND EXAMINATION RECORD SHEET

USDA - FOREST SERVICE

CARD 1 AND 2

1. STATE
2. COUNTY
3. FOREST
4. DISTRICT
5. COMPARTMENT
6. STAND NO.
7. LUP – ID.

PHOTOS: FLIGHT _____ SYMBOL _____ ROLL _____ PHOTOS _____

RP DESCRIPTION: SPECIES _____ D.B.H. _____

TRANSECT: STARTING POINT: _____
X TREE: SP. _____ AZ. _____ DIS. _____
Y TREE: SP. _____ AZ. _____ DIS. _____
AZIMUTH _____
DISTANCE _____

DATE _____ ESTIMATOR _____ RECORDER _____ PAGE _____ OF _____

REMARKS: _____

CARD 1

8. TYPE OF EXAM.
9. TRANSECT NO.
10. STRATUM
11. GRLU
12. ASPECT
13. SLOPE
14. PHYSIO.
15. ACCESSIBILITY
16. ELEVATION
17. LAND TYPE
18. HABITAT TYPE
19. STAND CLASS
20. TIMBER LAND CLASS
21. B.A.F.
22. FIXED PLOT SIZE
23. ACRES
24. % PLANTABLE
25. % SLASH COVER
26. TIME OF EXAM.
27. TREES / ACRES
28. LINE ITEMS
29.
30.
31.

CARD 2

32	33	34	35	36.	37.	38	39	40.	41.	42.	43	44.	45	46.	47	48	49	50.	51	52.	53.	54.	55.	56.	57.	
POINT NUMBER	TREE NUMBER	SPECIES	D.B.H.	TOTAL HEIGHT	10 YEAR RADIAL GROWTH	CROWN RATIO	CROWN CLASS	DAMAGE/ CAUSE OF DEATH	RELATIVE CROWN CANOPY POSITION	TREE/ COVER CLASS	SITE TREE ID	TREE AGE	TOTAL NUMBER OF TREES	OPTIONAL HEIGHT	HEIGHT GROWTH	SPECIES MIX	SLOPE	DOWN-WOODY MATERIAL 1/4" TO 1"	1" TO 3"	FIRST DUFF	SECOND DUFF	DIAMETER 3"+, SOUND	DIAMETER 3"+, ROTTEN			REMARKS
XX	XX	XX	XXX	XXX	XX	X	X	XX	XX	XX	X	XXX	XX	XXX	XXX	XX	X	XX	XX	XXX	XXX	XXX	XXX	XXX	XXX	

R4-2400-80 (4/78)

CARD 2

32. POINT NUMBER	33. TREE NUMBER	34. SPECIES	35. D.B.H.	36. TOTAL HEIGHT	37. 10 YEAR RADIAL GROWTH	38. CROWN RATIO	39. CROWN CLASS	40. DAMAGE / CAUSE OF DEATH	41. RELATIVE CROWN CANOPY POSITION	42. TREE / COVER CLASS	43. SITE TREE ID.	44. TREE AGE	45. TOTAL NUMBER OF TREES	46. OPTIONAL HEIGHT	47. HEIGHT GROWTH	48. SPECIES MIX	49. SLOPE	DOWN-WOODY MATERIAL 50. 1/4" TO 1"	51. 1" TO 3"	52. FIRST DUFF	53. SECOND DUFF	54. DIAMETER 3"+, SOUND	55. DIAMETER 3"+, ROTTEN	56.	57.	REMARKS
XX	XX	XX	XXX	XXX	XX	X	X	XX	XX	XX	X	XXX	XX	XXX	XXX	XX	X	XX	XX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	

Appendix 3

PROPOSED TREATMENTS

Most treatments will be a form of overstory removal of infected host trees. Suggested means of accomplishment are:

1. Commercial harvest (in areas of sufficient volume)
2. Salvage sale
3. Firewood sale
4. Girdle
5. Fell and scatter

In the "21" strata areas, understory host trees greater than 3 feet tall and within 50 feet of an infected overstory host tree should be presumed infected and destroyed (Graham 1967). Where host understory stocking is minimal, a diseased overstory may be retained if the area is planted to a non-host species.